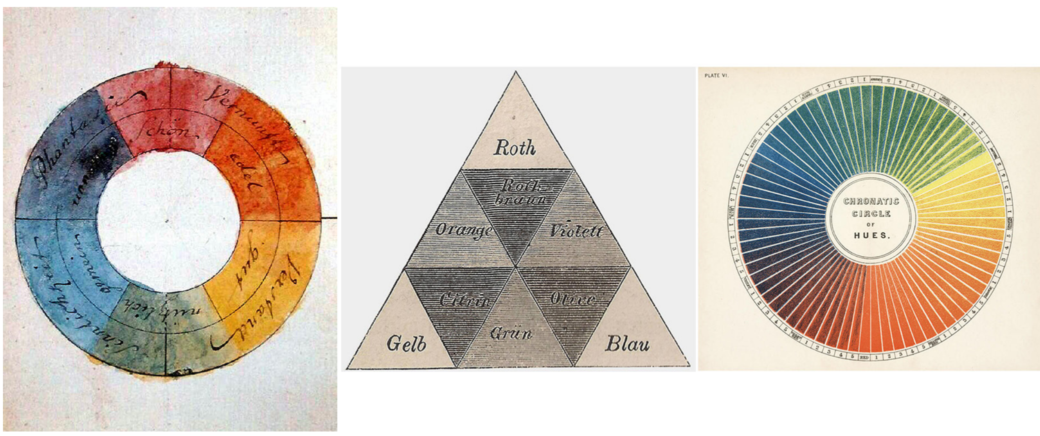
Colour as a Sensible Property of Matter and as an Expressive Tool. Copying vs. Emulating

Carlos L. Marcos

Abstract

Colour is a property of material objects and, as such, it belongs to the realm of the sensible world. The role of expression through colour in painting has been a hallmark of the trade. Architecture also involves the use of colour as a means of expression, together with other resources such as textures, finishes, or materials. Architectural tuition must also aim at the sensibilisation of these expressive values. Teaching ideation, hand drawing and artistic creativity has been part of this experience.
This research deals with a pedagogy that has been put to the test during the last 25 years in three different architecture schools. We have experimented on a pedagogical approach based on triggering the inspiration and creativity of our students by emulating previous artistic references, understood both as a constraint and as a guidance. The purpose is not to copy a given exemplary model as that would involve a classical approach, but rather trying to emulate ways of doing. Additionally, we have compared the results of this same pedagogical approach between our architecture students and those achieved by senior students (over 50 years) that attend a painting course related to colour. Colour is just one of four different teaching units in the architectural degree hand drawing course for first year students. In all cases, we have used Impressionism, Divisionism, Postimpressionism and Fauvism as the pretext and as a source of inspiration.

Keywords
Colour, Copying, Emulating, Reinterpreting, Learning Processes



Colour wheels or chromatic circles by Johann Wolfgang Goethe, 1809 (left); Guido Schreiber's triangle, 1868 (centre); Michel Eugène Chevreul, 1839 (right).

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Introduction

For centuries, novice painters would learn by copying their master's works. At the age of thirteen Michelangelo joined Ghirlandaio's workshop, the largest in Florence then. The case of Rubens is another example of this master-apprentice relationship; obviously, the first would also benefit from the dissemination of his own influence [Benjamin 2003, p. 39].
From the Renaissance until the advent of Impressionism the goal of painters was dedicated to realistic figuration, trying to achieve the illusion of volume and depth in space on the canvas by reducing the three-dimensional world onto a plane. Copying a finished masterful painting did indeed involve some difficulty. Accordingly, it partially served to the purpose of learning, despite the autographic nature of painting and the differences between original and forgery [Goodman 1973, p. 120].
The increasing detachment of the avant-gardes from the Renaissance canon based on perspective and chiaroscuro, certainly involved a significant change in relation to learning. At the peak of the influence of the art academies and with the invention of photography in the nineteenth century, realistic figuration begun a progressive decline. Impressionist painters had to fight their way out of the academic circles finally achieving success through their initiative of consecutive editions of the *Salon des Indépendants* propelled by gallerist Paul Durand-Ruel [Gompertz 2014, p. 74].
Modernity brought to painting a greater focus on expression and interpretation of reality. Artists became aware of the extraordinary expressiveness of colour, something not accessible to photography at the time. The progressive decline of realistic figuration opened up a whole new range of expressive and formal possibilities. Thus, a masterful representational technique was not as necessary as it used to be. Copying, for instance, a suprematist abstraction by Malevitch would entail no real difficulty and, certainly, would lack intrinsic pedagogical value.
Artists need not learn by copying other's works; they only need to be inspired by them. Their imagination should be triggered by precedents, as has always happened in the history of art. No valuable art work has ever been produced disregarding the past. When Stravinsky composed the *The Rite of Spring* he certainly introduced significant changes in the symphonic repertoire but he did not ignore it [Stravinsky 1947].
This research is focused on the pedagogical principle of emulation. However, instead of basing its validity on the copy of a given work considered as a model, the modelic nature of the reference is not a particular referent –another canvas– but, instead, an artist's way of doing, a certain mannerism that can be critically deduced and put into practice (fig. 1). Additionally, we believe that, although drawing or painting are somewhat trades that must be learned through practice, better results are obtained if students' work is anchored to valid references and there is a theoretical approach explaining what, why and when the discipline evolved or which artists should be considered as a reference for a specific type of work.

Methodology

We have been experimenting with these pedagogical principles for over 25 years of university teaching. We wanted to critically assess its validity comparing the results obtained with two very different groups of students facing similar topics.
The first group are young architecture students – most of them 18 years old – which, in most cases, lack any previous artistic background. The course involves a 15-week tuition including a 4 hour in person weekly class and an extra 6 hours of work at home. We teach them figurative drawing as well as abstraction, and we use the avant-gardes as a theoretical background and as a continuous reference because of their influence on modern architecture and of their importance 'per se'. Students are thus familiarised with an artistic realm which, in many cases, they completely ignore; getting them acquainted with the avant-gardes is another course objective.
The second group of students is a smaller group of senior students, 60 years old in average and most of which are retired. They take different courses to obtain a diploma that has no professional attributions. In this case, they took a painting course specifically focused on colour. To this end, they were exposed to Impressionism, Post-impressionism, Fauvism,

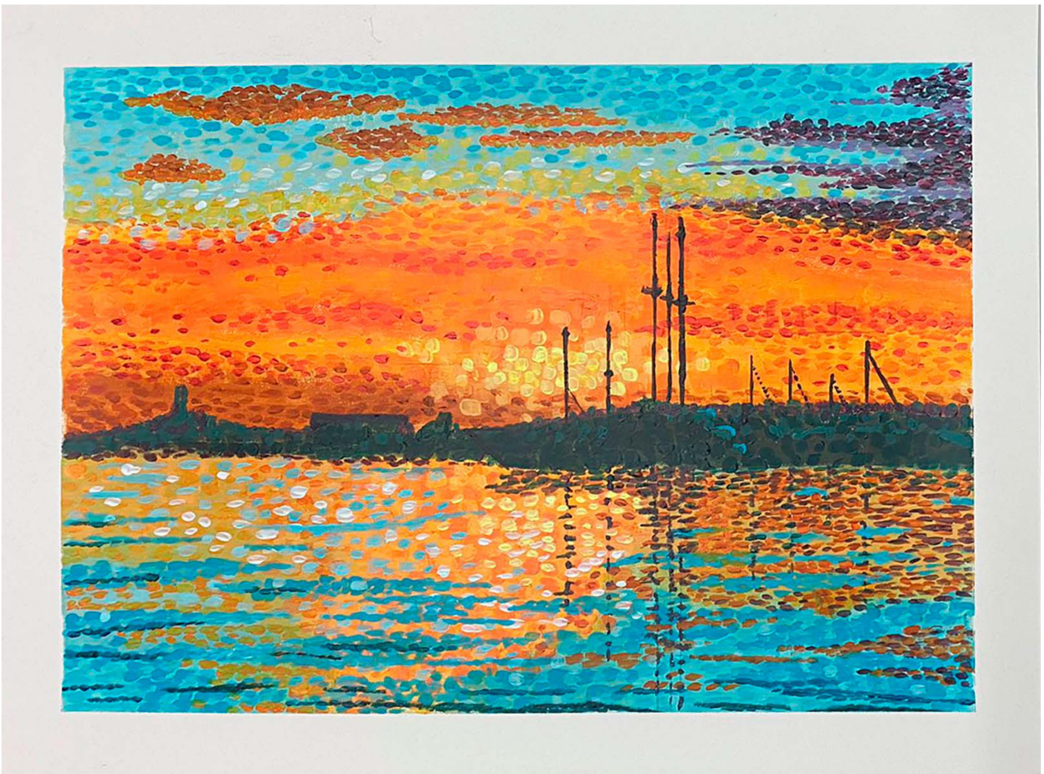


Fig. 1. Divisionism. Gracia Patricia Martínez, *Atardecer*, senior programme, 2023.

German Expressionism and Kandinsky's epoch at Murnau leading to abstraction. Although in their fight against academicism impressionist painters were persuaded that nature "is the only theory of art", Kandinsky himself considers they laid the foundations for a new science of art [Kandinsky 1947, p.19].
We have designed a series of assignments related to colour that are very similar if not the same in both courses. They are conceived to follow the wake of the leading figures of the aforementioned pictorial movements. In the course specifically dedicated to colour with senior students there is a wider range of assignments related to this kind of approach and the theoretical background is studied in depth. There is not enough time in the architectural course to go into that much detail; accordingly, some of the movements are skipped or briefly mentioned.

Objectives

It must be noted that in the case of architecture students, they have a quite condensed subject that is structured in four different teaching units: sketching, colour, perspective and abstraction. These units are mingled throughout the semester so there is not a fixed chronological order for each unit. In this particular case, colour is just an expressive tool. Learning about contrasts and harmonisation will be useful for them. In the course, the abstractions will achieve better results if these resources are well understood. However, the aim is more ambitious; it will be useful regarding presentation drawings and architectural representation but should be considered an expressive feature of architecture too.
The senior group of students solely pivots around colour. Some of them have painted before but many others haven't. Obviously, both are different types of students as are the results obtained by each of them. They take a more condensed programme comprising 13 in person three-hour sessions twice a week; so, in terms of class hours it adds up to a rough 2/3 of the time in comparison to the architecture group. Generally, the commitment of these senior students is surprisingly high; although they do not really need to undertake the off-campus assignments they regularly do, achieving good results in many cases.

The common goal in both groups is to make students sensible to colour once given a theoretical background while being acquainted with a series of selected pictorial references and trying to put all of it into practice. We have designed some common assignments to test these pedagogical principles by analysing the results and pondering their validity by comparison. If the results are good and similar, the teaching strategies should be considered successful. Even if some of the assignments related to colour are only undertaken by one of the two groups due to the different focus, provided the results have the necessary quality, it is to be expected that they would be analogous should they be posed to both. Accordingly, this would also support the teaching principles and strategies exposed here.

Results

A general assumption may inspire our pedagogic strategy. A theoretical approach as well as exposing students with well accredited painting references will surely be helpful, but will not be sufficient. Learning about contrasts and harmonisations implies putting into practice those theories while following the wake of others' inspiring and innovative use of colour. It is only through practice that expression can be unleashed; therefore, students must achieve practical results applying what they have been taught. This is the whole basis of our teaching practice.

The understanding of a theory of colour is important. Thus, the objective role of Physics and the decomposition of sun light into colour unveiled by Newton is as relevant as the theories of Goethe [Goethe 1999] or Chevreul [Chevreul 1939], which played a major role in the colour revolution undertaken by late nineteenth century painters, most significantly by neo impressionists [Gompertz 2013, p. 98]. To this regard, the key role of the colour wheel still plays an important part in becoming aware of the relationships among colours –the six fundamental colours– as well as the sharp contrast between complementary colours, opposed within the wheel [1].

The initial assignment related to colour is very similar in both cases. Many of the students in both groups have never painted or used colour previously. Because there is a time limit and due to the kind of references we deal with, we tend to suggest the use of acrylic paint: its use is fast, it is similar to oil quality and richness with regard to colour, and it is a fully covering technique – any mistakes can be easily corrected once it is dry. This first assignment explores a set of given harmonisations in a colour series. Thus, a fragment of a painting typically chosen amongst fauvists or German expressionists, is used as a pretext for the series. A given set of harmonisation restrictions are explored by students [2]. This serves the purpose of initiating them into the acrylic painting technique itself while they learn to harmonise and deal with sharp contrasts related to the pictorial references (fig. 2). Senior students deepen into the evolution of colour through Impressionism. A class is given to them specifically focused on what was referred to as neo impressionism and divisionism. The latter was an evolution within the movement that used small patches of complementary colours next to each other so their contrasts were perceived while the colour was optically mixed. Students are asked to produce a divisionist sunset by the sea that they must previously photograph in order to capture all the nuances so that all the colourful effects may be carefully studied and worked on the painting (figs. 1, 3). Considering the results achieved, much about complementary colours and contrast simultaneity [Chevreul 1939] are understood.

A second common assignment in both groups that is generally inspired in fauvism is a self-portrait. This is the only assignment in the course where architecture students are allowed to use a photograph to guarantee a significant resemblance. The point here is to spark their sensitivity towards colour, contrasts and bold harmonisations triggering their inspiration after Derain, Matisse or some of the German expressionists. We see similar results in both groups as they enjoy doing it because of the resemblance they achieve despite the bold reinterpretation of the initial image (fig. 4). Observing these examples, we can easily understand the words by Kandinsky referring to the psychological implications of colour upon ourselves: "colour is a means of exercising direct influence upon the soul" [Kandinsky 1946, p. 43], a sensible-moral effect exerted by colour that Goethe's colour theory had already asserted [Franco Taboada 2015, p. 49].

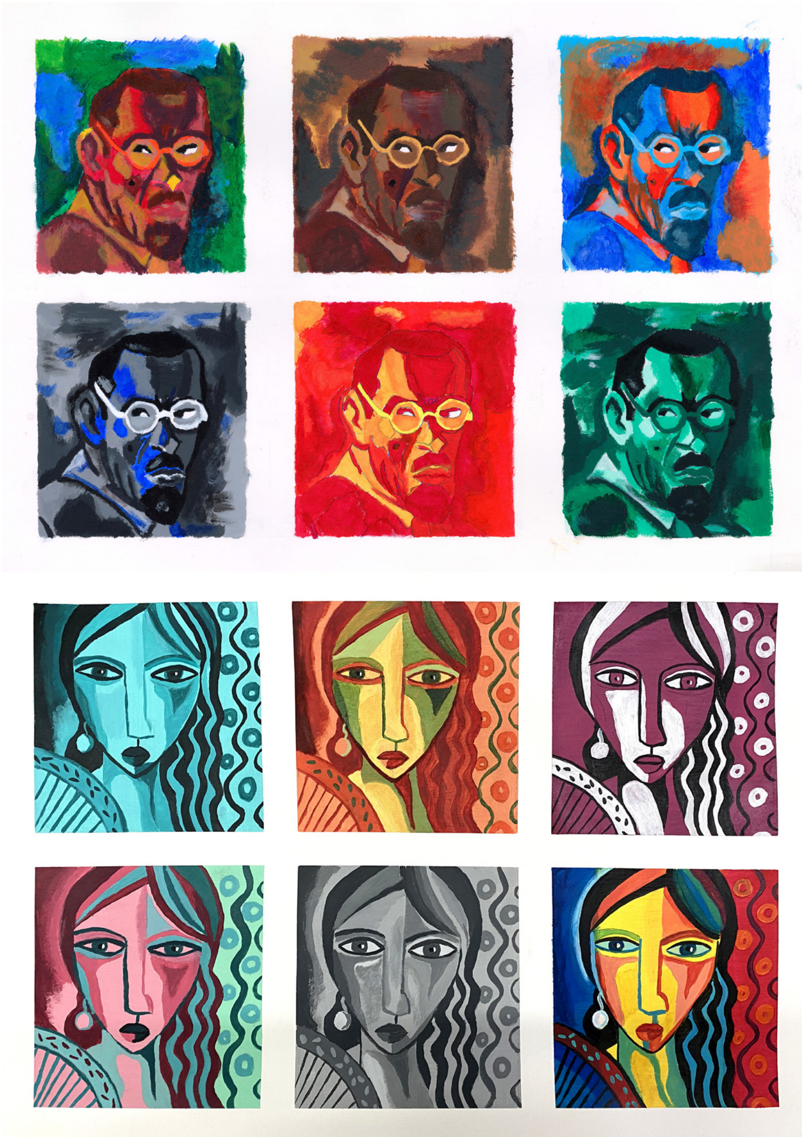


Fig. 2. Colour series. Nuria García Sánchez architecture student (top). Patricia Gracia Martínez senior programme (bottom).

Another assignment posed to both groups of students deals with colour and space. They are given instructions to interpret light and shadows through colour coding, just as in the case of the self-portrait, but, on this occasion, the model is not an object or a figure, but an architectural interior. This assignment is given to architecture students after they have been drawing architectural sketches for some weeks and are, therefore, familiar with perspective; accordingly, unlike the senior students, they must not use photographs in this assignment.
The importance of using a consistent approach to light and shadow to achieve the sought 'chromatic chiaroscuro effect' through colour coding is crucial (fig. 5). This is based on the use of colour in fauvism as well as some of the experiences on colour codification developed at the Gestaltung Ulm School [Fernández Campos, Sánchez Moya 2021]. They learn that since representation is founded on visual perception, as long as there is a range of colours that is consistently used as a substitute of value – different light intensities-, a colourful chiaroscuro effect is possible and the observer's brain is capable of reconciling this extrapolation. After all, colours interact with each other and their contrastive effects are relative with regard to the surrounding hues as well as their extension [Albers 1979].
Finally, both groups of students are progressively driven into abstraction. A major difference is established between the two groups for pedagogical reasons. Architecture students are shown their way towards abstraction through pictorial references such as cubism, suprema-

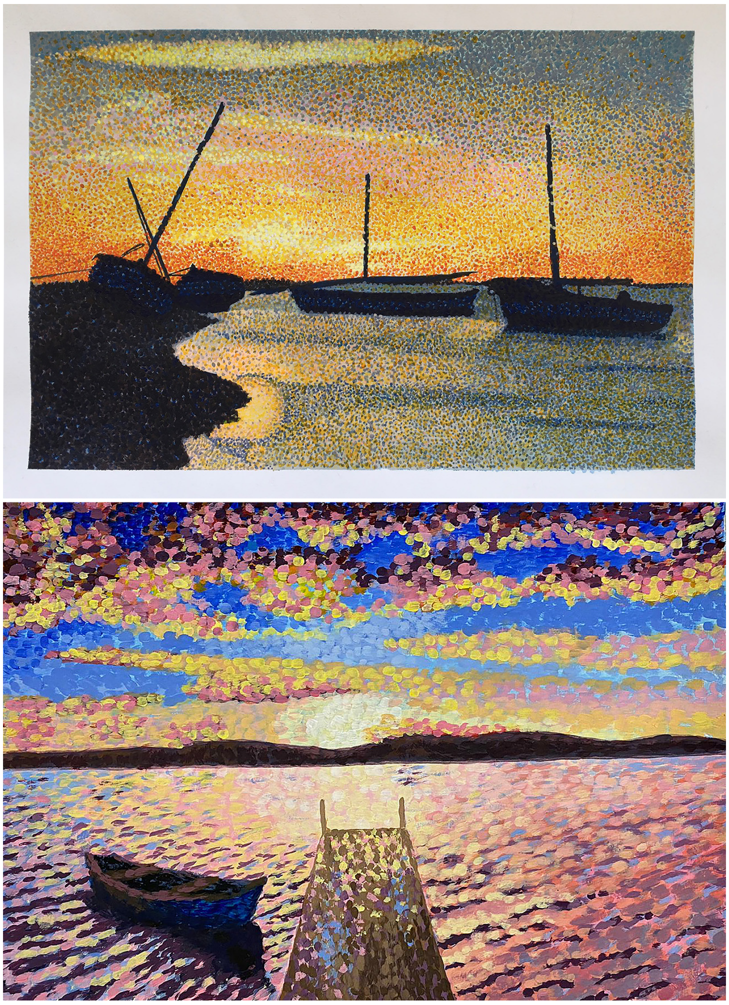


Fig. 3. Divisionist sunset by the sea. Christine Esswein (top), Rosina Vignale, senior programme (bottom), 2023.

tism, neoplasticism, and constructivism which have been very influential with regard to modern architecture as they are founded on geometry. Accordingly, they are asked to delve into some of these movements and produce works using those references while experimenting with mixed techniques or collage (fig. 6).
Senior students, whose course is specifically focused on colour are driven into abstraction through the progressive autonomy of colour regarding reality experimented in fauvism, expressionism and Kandinsky's period in Murnau, which would eventually lead to the non-representational or purely abstract [Gore 1961, p. 9], stemming directly from the emancipation of colour over form (fig. 7).



Fig. 4. Fauvist or expressionist self-portrait (left to right). Cristina Campos Maciá, Ivova Ivanova 2022. Christine Esswein, senior programme 2023.

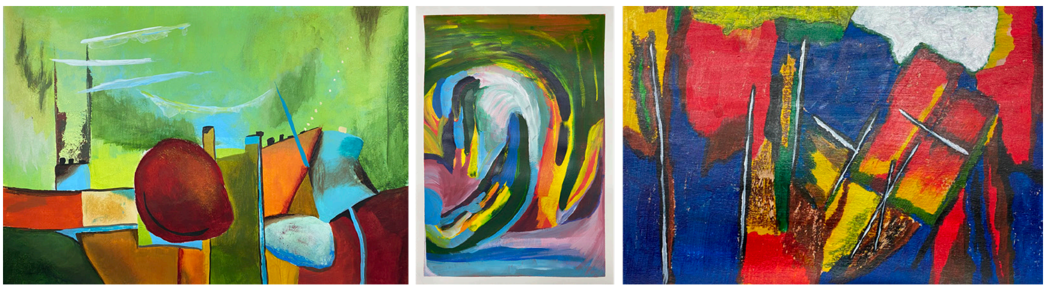
Fig. 5. Chromatic interpretation of interior. Natalia Szymanek, 2022 (left); Luis Gomis, architecture students, 2012 (centre); Christine Esswein, senior programme, 2023 (right).



Fig. 6. Synthetic cubist still natures, 2022. Camila Rojas Bearzotti, class (left); Nana Kheladze (right). Schimnke house abstraction, Maria Verdú Giménez, 2016 (centre). Architecture students.



Fig. 7. Abstraction and colour. Sin título, Patricia Gracia Martínez (left); Pingüinos, Beatriz Relinque Eleta (centre); Sin título, Fernando Martínez Bernal (right), senior programme, 2023.



That is the reason why the examples shown here of both groups are so very different despite their use of colour still gives the sense of having gained a solid ground with respect to its use. The assumption of an instinctive impulse towards abstraction and the quest for the absolute or the immutable is a tendency in this kind of aesthetic approach [Worringer 1966].

Conclusion

Both groups of students with very different backgrounds have achieved significant quality results in relation to the pedagogical objectives sought in these innovative teaching practices. They have been acquainted with several pictorial movements. Not only have they learned

how those painters dealt with colour or are able to contextualise those pictorial movements, they are also able to successfully and expressively emulate their ways of doing. Additionally, they have improved their sensibilisation towards colours, contrasts and harmonies too.
Moreover, the pedagogical principles and teaching strategies deployed in these courses and the results obtained despite the significant differences between both groups of students show that the tuition is effective and is able to achieve the following summarised results:
- certain graphic skills;
- knowledge of the pictorial avant-gardes;
- sensibilisation towards colour as a major expressive graphic tool;
- sensibilisation towards colour as a quality and an expressive value of architecture (only for architecture students).

Accordingly, colour, may serve for different expressive and even, semantic purposes in architecture too.

Notes

[1] Note that Guido Schreiber's triangle – often and inaccurately attributed to Goethe – goes a step further as it establishes not only the order and hierarchy of primary and secondary colours but also includes the relationship between these six fundamentals –rainbow – colours and the tertiary ones, the latter only possible through pigment combinations (subtractive colours). <https://dr-andreas-schwarz.de/en/goethes-color-triangle.html>.

[2] Mandatory constraints: saturation of a colour by whites and blacks; mixtures of colours between two primaries; achromatic with a pure colour without mixing, complementary colours, harmonisation with tertiary colours – browns, ochres, tans – (senior students would have to replace it for an achromatic harmonisation); a wide range of colours other than those of the original. Note that the order in which each vignette dependant on the given constrains is arranged differs in both colour series.

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